in 12 out of 84 wrists without CTS (14.3%). In idiopathic CTS, PD signal was found in 15 out of 24 wrists (62.5%).

Conclusion: US allowed a detailed identification of the pathological findings at carpal tunnel in both RA and idiopathic CTS patients. When CTS was diagnosed, different US patterns were distinguished being median nerve less frequently enlarged and synovitis more frequently detected in RA patients. Finally, a positive association was found between the presence of intra-neural PD signal and clinical diagnosis of CTS independently of the diagnosis of RA.

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AB1182

THE CORRELATION BETWEEN THE ULTRASOUND-DETECTED SYNOVITIS OF SMALL JOINTS AND THE DISEASE ACTIVITY IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: In patients with rheumatoid arthritis (RA), small joints, especially metacarpophalangeal (MCP), and interphalangeal (PIP) joints are frequently affected. Ultrasound (US) is a sensitive method for detecting joint inflammation in patients with RA. So far, what degree does the synovitis of every small joint contribute to the disease activity in RA was not clear.

Objectives: The purpose of the present study was to compare the correlation between the ultrasound-detected synovitis of small joints and the disease activity in RA.

Methods: 211 RA patients with DAS28-ESR >2.6 were included in this study. Thirty joints, including bilateral metacarpophalangeal (MCP) 1-5, proximal interphalangeal (PIP) 1-5 and metatarsophalangeal (MTP) 1-5 joints, were evaluated by ultrasound scan in all patients. Disease activity was assessed by DAS28-ESR, DAS28-CRP, CDAI, SDAI. Synovitis was detected by using semi-quantitative scoring systems (0-3) for grey scale (GS) and power Doppler (PD). All correlations among US variables and clinical variables were assessed using Spearman's rank correlation test.

Results: Their median age was 51.82 years, median disease duration was 60 months, with 84.3% females. The mean (SD) DAS28-ESR and DAS28-CRP were 4.59 ± 1.51 and 4.18 ± 1.39 , respectively. The whole GS scores of MCPs (MCP1-5 joints) showed highest correlation with the disease activity ($r=0.403-0.452$, $p<0.01$), including DAS28-ESR, DAS28-CRP, CDAI and SDAI, followed by PIPs ($r=0.318-0.331$, $p<0.01$) and MTPs ($r=0.277-0.301$, $p<0.01$). Similarly, the whole PD scores of MCPs also showed highest correlation with the disease activity ($r=0.332-0.396$, $p<0.01$), followed by PIPs ($r=0.211-0.242$, $p<0.01$), and then the least MTPs ($r=0.198-0.222$, $p<0.01$). In individual joint, GS score showed better correlation with disease activity than PD score. In 30 joints, MCP3 joint exhibited the highest correlation between GS score and DAS28-ESR ($r=0.411$, $p<0.01$), DAS28-CRP ($r=0.459$, $p<0.01$), SDAI ($r=0.444$, $p<0.01$). MCP2 joint exhibited the highest correlation between GS score and CDAI ($r=0.421$, $p<0.01$). While MCP5 joint exhibited the highest correlation between PD score and DAS28-ESR ($r=0.353$, $p<0.01$), DAS28-CRP ($r=0.399$, $p<0.01$), CDAI ($r=0.368$, $p<0.01$), SDAI ($r=0.377$, $p<0.01$). In 30 joints, PIP1 showed lowest correlation between GS ($r=0.166-0.199$, $p<0.01$)/PD ($r=0.134-0.143$, $p<0.01$) score and disease activity.

Conclusion: In small joints of RA patients, the ultrasound-detected synovitis of MCPs had best correlation with disease activity, compared with PIPs and MTPs. In individual joint, MCP2, MCP3, and MCP5 joint had the best correlation between ultrasound-detected synovitis and disease activity, while PIP1 joint showed lowest correlation.

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AB1183

ULTRASOUND POWER DOPPLER AND GREY-SCALE JOINT INFLAMMATION: WHAT DO THEY REVEAL ABOUT RHEUMATOID ARTHRITIS?

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Background: Grey-scale (GS) and Power Doppler (PD) imaging are routinely performed when assessing rheumatoid arthritis (RA) joint inflammation using ultrasound (US). While PD vascularity is often regarded as an US feature of more active joint inflammation, the true clinical significance of GS joint inflammation in RA is less understood.

Objectives: To gain further insight into US PD and GS joint Inflammation through studying their relationship with two distinct, yet important outcome measures: (i) DAS28 – a disease activity measure and (ii) US-detected erosion – a structural joint damage measure.

Methods: In this cross sectional study, US PD and GS joint inflammation were graded semi-quantitatively (0-3), while bone erosion(s) was scored dichotomously (1=yes/0=no) at each joint recess. At the patient level, PD and GS scores were correlated with DAS28 and US erosion scores respectively using Pearson's correlation coefficient, while linear regression was used to characterize the relationship between variables.

Results: 1080 joints and 1800 joint recesses from bilateral elbows, wrists, MCPJs, thumbs' IPJs, PIPJs, ankles and MTPJs were scanned in 30 adult RA patients (baseline characteristics: 76.7% Chinese; 93.3% female; mean (SD) DAS28, 3.58 (1.20); mean (SD) disease duration, 70.3 (61.2) months). PD scores were correlated ($r=0.46$, $P<0.0104$) with DAS28 but not with US erosion scores. GS scores were correlated ($r=0.64$, $P<0.0001$) with US erosion scores but not with DAS28 (table 1). Scatter plots for these variables are presented in Figure 1. Results of simple linear regressions showing PD as a predictor of DAS28 (coefficient (95% CI), 0.167 (0.048, 0.286); $P=0.0104$) and GS as a predictor of US erosion (coefficient (95% CI), 0.223 (0.125, 0.322); $P=0.0001$) are summarized in table 2.

Figure 1: Scatter plots for the ultrasound and clinical variables

Figure 1

Conclusion: US PD and GS joint inflammation in RA were characterized using disease activity and structural joint damage outcome measures. PD joint inflammation is associated with disease activity and has moderate